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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/114,665 07/13/98 BIELER

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EXAMINER

IM62/1201

IP, S	ART UNIT	PAPER NUMBER
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1742

DATE MAILED:

12/01/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

BEST AVAILABLE COPY

Office Action Summary	Application No.	Applicant(s)	
	Examiner	Group Art Unit	

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

Responsive to communication(s) filed on 9/21/98 ; 7/19/99

This action is FINAL.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

Claim(s) 1 - 19 is/are pending in the application.

Of the above claim(s) 17 - 19 is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

Claim(s) 1 - 16 is/are rejected.

Claim(s) _____ is/are objected to.

Claim(s) _____ are subject to restriction or election requirement.

Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The proposed drawing correction, filed on _____ is approved disapproved.

The drawing(s) filed on _____ is/are objected to by the Examiner.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All Some* None of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) _____.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Attachment(s)

Information Disclosure Statement(s), PTO-1449, Paper No(s). 2 Interview Summary, PTO-413

Notice of References Cited, PTO-892 Notice of Informal Patent Application, PTO-152

Notice of Draftsperson's Patent Drawing Review, PTO-948 Other _____

Office Action Summary

Art Unit: 1742

DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-16 are, drawn to a method for producing an in-situ composite solder having an intermetallic phase, classified in class 148, subclass 538+.
 - II. Claims 17-19 are, drawn to a composite solder containing an intermetallic phase with particles less than 10 microns, classified in class 420, subclass 557+.
2. The inventions are distinct, each from the other because:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process as claimed can be used to make other and materially different product which contains an intermetallic phase with particles greater than 10 microns. Or, the product as claimed can be made by another and materially different process such as heat treatment after soldering.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. Because these inventions are distinct for the reasons given above and have acquired a

Art Unit: 1742

separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with DeAnn F. Smith on September 29, 1998 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 17-19 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

Specification

8. The disclosure is objected to because of the following informalities: In page 5 of the instant specification that, the brief description of the drawing for Figures 1-3 are not being complied with the 37 C.F.R. §1.74. It is required that a separate brief description for each figure including sub-figures. See MPEP § 608.01 (f) and 608.02. Appropriate correction is required.

Art Unit: 1742

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 2-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. Claims 2-5 are indefinite because the antecedent basis of the expression "the solder matrix" is unclear. The expression could be referred to solder in Claim 1 step a) or the final composite solder product.

12. Claim 7 is indefinite because the volume ratio is unclear.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1-6, 8, 9, 14, and 15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by USP 5527628 to Anderson et al. (Col. 4 lines 15-27, col. 3 lines 18-32, and col. 5 line 59 to col. 6 line 59) PTO-1449).

Art Unit: 1742

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. The factual inquiries set forth in *Graham v. John Deere Co.*, 148 USPQ 459, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

- A. Determining the scope and contents of the prior art.
- B. Ascertaining the differences between the prior art and the claims at issue.
- C. Resolving the level of ordinary skill in the pertinent art.
- D. Considering objective evidence present in the application indicating obviousness or unobviousness.

17. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

18. Claim 7 is rejected under 35 U.S.C. § 103 as being unpatentable over USP 5527628 to Anderson et al. as applied to claims above, and further in view of Gibson et al.

19. The claimed subject matter as is disclosed and rejected above by the cited reference(s) except for the volume of the intermetallic phase. However, Gibson et al. In the abstract teach 20 volume percent intermetallic phase would improve fatigue resistance. Therefore, it would have been obvious to one having ordinary skill in the art of cited references at the time the invention

Art Unit: 1742

was made to employ the teachings as taught by Gibson et al. in order to improve the solder fatigue resistance. In re LaVerne, et al., 108 USPQ 335 and In re Aller, et al., 105 USPQ 233.

20. Claims 10-13 are rejected under 35 U.S.C. § 103 as being unpatentable over USP 5527628 to Anderson et al. as applied to claims above, and further in view of USP 5520752 to Lucey, Jr. et al.

21. The claimed subject matter as is disclosed and rejected above by the cited reference(s) except for the different intermetallic phases and cooling methods. However, Lucey, Jr, et al. In col. 3 line 64 to col. 4 line 5 disclose the other intermetallic phases in the eutectic solder alloys and their cooling methods are conventional in the same field of endeavor. Therefore, it is within ambit of ordinary skill artisan to use conventional methods to produce conventional solders. It has been held that combining known ingredient having known functions, to provide a composition having the additive effect of each of the known functions is within realm of performance of skilled artisan and is not a patentable subject matter. In re Castner, 186 USPQ 213 (217). The use of conventional materials to perform their known functions in a conventional process is obvious. In re Raner, 134 USPQ 343 (CCPA 1962).

22. Claims 1-6, 8-10, and 15 are rejected under 35 U.S.C. § 103 as being unpatentable over USP 5863493 to Achari et al.

23. The cited reference discloses the features substantially as claimed. The disclosed features include the solder alloys and its casting method. The features relied upon described above can be found in the reference at col. 3 lines 49-65. Therefore, the subject matter as a whole would have

Art Unit: 1742

been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the subject matter disclosed by the reference. Overlapping ranges have been held to be a *prima facie* case of obviousness.

Allowable Subject Matter

24. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The above rejection relies on the reference(s) for all the teachings expressed in the text(s) of the references and/or one of ordinary skill in the metallurgical art would have reasonably understood or implied from the text(s) of the reference(s). To emphasize certain aspect(s) of the prior art, only a specific portion(s) of the text(s) has been pointed out. Each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combination of the cited references may be relied on in future rejection(s) in view of amendment(s).

All recited limitations in the instant claims have been met by the rejections as set forth above.

Applicant is reminded that when amendment and/or revision is required, applicant should therefore specifically point out the support for any amendments made to the disclosure. See MPEP § 2163.06 (a) and 37 C.F.R. § 1.119.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Ip whose telephone number is (703) 308-2542. The examiner can normally be reached Monday to Friday from 6:30 A.M. to 3:00 P.M.

Application/Control Number: 09/114,665

-Page 8-

Art Unit: 1742

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Prince Willis, Jr., can be reached on (703)-308-3050.

The facsimile phone number for "After Final Official Papers" is (703) 305-3599, "All Other Official Papers" is (703) 305-7718, and "Unofficial Papers" is (703) 305-7719. When filing a FAX in Technology Center 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.



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ART UNIT 1742

S. Ip
November 22, 1999